Remarks

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested.

Claims 5, 6, 12 and 13 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 5, 6, 12 and 13 have been amended so as to address this rejection. As a result, withdrawal of this rejection is respectfully requested.

Claims 1, 2, 8 and 9 have been rejected under 35 U.S.C. §102(e) as being anticipated by Maalej (US 6,545,532). Claims 3, 4, 10 and 11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Maalej in view of Applicants' admitted prior art (AAPA).

Claims 1 and 8 have been amended so as to further distinguish the present invention from the references relied upon in the above-mentioned rejections.

Further, claims 1, 3, 8 and 10 have been amended to make editorial revisions thereto. These revisions have been made to place the claims in better U.S. form. None of these amendments have been made to narrow the scope of protection of the claims, or to address issues related to patentability, and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

In addition, new claims 14 and 15 have been added.

It is submitted that the above-mentioned rejections are inapplicable to the claims for the following reasons.

Claim 1 is patentable over Maalej, since claim 1 recites a digital broadcast receiving apparatus including, in part, second automatic gain control amplification means for amplifying a level of a first demodulated digital signal to be at a second predetermined level, and generating a second demodulated digital signal, wherein the second automatic gain control amplification means includes: multiplication means for receiving the first demodulated digital signal and an automatic gain control signal, multiplying the first demodulated digital signal by the automatic gain control signal, and outputting the multiplied signal as the second demodulated digital signal; level detection means for receiving the second demodulated digital signal outputted from the multiplication means, detecting a level of the second demodulated digital signal, and generating a level signal representing the level of the second demodulated digital signal; and automatic gain control signal generation means for receiving the level signal representing the level of the second demodulated digital signal, generating the automatic gain control signal based on the received

level signal, and outputting the automatic gain control signal to the multiplication means. Maalej fails to disclose or suggest the second automatic gain control amplification means as now recited in claim 1.

Maalej discloses a QAM demodulator 99 that includes a first automatic gain (AGC) controller circuit 10, a second automatic gain (AGC) controller circuit 20, and a carrier recovery circuit 50. The second AGC controller circuit 20 includes a digital multiplier 210, a digital loop filter 220, and a power comparator 230. The carrier recovery circuit 50 includes a frequency offset detect circuit 525, a phase offset detect circuit 535 and a direct digital synthesizer 545. The frequency offset detect circuit 525 is used to readjust the tuner frequency in order to reduce filter degradation on the signal and thus improve the bit error rate. The phase offset detect circuit 535 is used for phase tracking in a situation where phase noise is located on the signal.

The second AGC controller circuit 20 receives signal components I and Q from the carrier recovery circuit 50 via a receive filter 40 which filters out adjacent channels. Therefore, the second AGC controller 20 only takes into account the received power of the signal. The second AGC controller circuit 20 is operable to compensate for attenuation of the first AGC controller circuit 10, which is caused by the presence of the adjacent channels, and adapts the signal level exactly to decision threshold levels of the signal. (See column 4, line 64 – column 7, line 38 and Figures 2, 4 and 5).

In the rejection, it is indicated that the second AGC controller circuit 20 and the carrier recovery circuit 50 in tandem correspond to the second automatic gain control amplification means of claim 1. However, claim 1 now recites that the second automatic gain control amplification means includes: (1) multiplication means for receiving the first demodulated digital signal and an automatic gain control signal, multiplying the first demodulated digital signal by the automatic gain control signal, and outputting the multiplied signal as the second demodulated digital signal; (2) level detection means for receiving the second demodulated digital signal outputted from the multiplication means, detecting a level of the second demodulated digital signal, and generating a level signal representing the level of the second demodulated digital signal; and (3) automatic gain control signal generation means for receiving the level signal representing the level of the second demodulated digital signal, generating the automatic gain control signal based on the received level signal, and outputting the automatic gain control signal to the multiplication means. This structure of the second automatic gain

control amplification means reduces a signal delay in the second automatic gain control amplification means, thereby allowing the claimed apparatus having the second automatic gain control amplification means follow large frequency fluctuations in a digital broadcast wave.

On the other hand, the QAM demodulator 99 has the first AGC controller circuit 10 and the second AGC controller circuit 20, and the second AGC controller circuit 20 includes the digital multiplier 210, the digital loop filter 220 and the power comparator 230. However, the apparatus of Maalej also includes the receive filter 40, an equalizer 45, and a carrier wave recovery circuit 50 located between the digital multiplier 210 and the power comparator 230. (See Figure 2). Therefore, Maalej clearly fails to disclose or suggest that the power comparator 230 receives a signal outputted from the multiplier 210. Since this is the case, it is apparent that there is no disclosure or suggestion in Maalej that the second AGC controller circuit 20 and the carrier recovery circuit 50 in tandem disclose or suggest the (1) multiplication means; (2) level detection means; and (3) automatic gain control signal generation means of the second automatic gain control amplification means recited in claim 1. As a result, claim 1 is patentable over Maalej.

As for claim 8, it is patentable over Maalej for reasons similar to those discussed above in support of claim 1. That is, claim 8 recites, in part, a second automatic gain controller including (1) a multiplier; (2) a level detector; and (3) automatic gain control signal generator, which features are not disclosed or suggested by Maalej.

Claim 3 is patentable over the combination of Maalej and AAPA, since claim 3 recites, a digital broadcast receiving apparatus including, in part, first automatic gain control amplification means for controlling gain of tuner means to make a level of a first modulated signal at a first predetermined level; and second automatic gain control amplification means for amplifying a level of a first demodulated digital signal by following frequency fluctuations thereof to be at a second predetermined level, and generating a second demodulated digital signal, wherein the first automatic gain control amplification means controls amplification of a digital modulated signal wave by following frequency fluctuations thereof that are smaller than a first predetermined frequency for generation of the first modulated signal, and the second automatic gain control amplification means amplifies the first demodulated digital signal by following frequency fluctuations thereof under a second predetermined frequency that is larger than the first predetermined frequency, and generates the second demodulated digital signal. The

combination of Maalej and AAPA fails to disclose or suggest the first automatic gain control amplification means and the second automatic gain control amplification means as recited in claim 3.

As discussed above, Maalej discloses the QAM demodulator 99 that includes the first automatic gain (AGC) controller circuit 10, the second automatic gain (AGC) controller circuit 20, and the carrier recovery circuit 50. (See column 4, line 64 – column 7, line 38 and Figures 2, 4 and 5). However, as admitted in the rejection, Maalej fails to disclose or suggest controlling amplification of a digital modulated signal wave by following frequency fluctuations thereof that are smaller than a first predetermined frequency for generation of a first modulated signal, and amplifying a first demodulated digital signal by following frequency fluctuations thereof under a second predetermined frequency that is larger than the first predetermined frequency. Therefore, the combination relies on AAPA as disclosing these features of claim 3.

Regarding AAPA, it discloses a single automatic gain controller AGC including an AGC signal generator SG and a level detector LD. (See Figure 21). However, it is clear that there is no disclosure or suggestion in AAPA of the use of a first predetermined frequency and a second predetermined frequency that is larger than the first predetermined frequency. Since AAPA fails to address the deficiencies of Maalej, it is apparent that the combination of Maalej and AAPA fails to render the present invention as recited in claim 3 obvious. Further, if the Examiner maintains the position that AAPA discloses these features of claim 3, it is respectfully requested that the Examiner detail what features in AAPA corresponds to the first and second predetermined frequencies.

As for claim 10, it is patentable over the combination of Maalej and AAPA for reasons similar to those discussed above in support of claim 3. That is, claim 10 recites, in part, a first automatic gain controller operable to control gain of a tuner to make a level of a first modulated signal at a first predetermined level; and a second automatic gain controller operable to amplify a level of a first demodulated digital signal by following frequency fluctuations thereof to be at a second predetermined level, and generate a second demodulated digital signal, wherein the first automatic gain controller controls amplification of a digital modulated signal wave by following frequency fluctuations thereof that are smaller than a first predetermined frequency for generation of the first modulated signal, and the second automatic gain controller amplifies the first demodulated digital signal by following frequency fluctuations thereof under a second

predetermined frequency that is larger than the first predetermined frequency, and generates the second demodulated digital signal, which features are not disclosed or suggested by the combination.

Because of the above-mentioned distinctions, it is believed clear that claims 1-6 and 8-15 are patentable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1-6 and 8-15. Therefore, it is submitted that claims 1-6 and 8-15 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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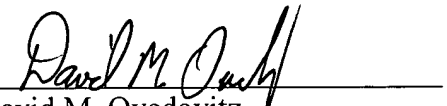
By: 

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